REMARKS

Claims 1-20 are pending. At the outset, Applicant thanks the Examiner for indicating Claim 15 recites allowable subject matter. This claim is rewritten in an independent format.

Claims 1 and 11 are amended to clarify the claimed invention. The pre-loading pump of Claim 5 has been added to Claims 1 and 11. Also, Claims 1 and 11 are amended to clarify the arrangement of the valve means/activating means as supported by the specification at page 8, lines 8-33. They recite the valve means/activating means intercept a pilot pipe. As explained at page 8, the pilot pipe 36 of Fig. 1 is connected to pipe 41 which is connected to a chamber 27 of a piston 23 which controls the feed pump 17. As explained at page 6, first full paragraph, pipe 41 is connected to the pre-loading pump 40.

Claim 5 is amended to recite the pre-loading pump is the sole source of pressurized oil from outside the hydraulic circuit into the hydraulic circuit. An example of this is pump 40 of Figs. 1 and 2. In contrast, pump 17 of Fig. 1 operates with oil already in the hydraulic circuit.

Claims 13 and 14 are amended to overcome rejections under 35 U.S.C.§112, second paragraph. Support for the amendment to claim 13 is found at least in claim 1, line 8. Support for the amendment to claim 14 is found at least in claim 7, line 3 (hydraulic actuator 23). (In these Remarks, claim element numbers are only included to assist the Examiner. The inclusion of claim element numbers does not limit the claims.)

Claim 20 was amended to be consistent with its base claim amendments.

I. 35 USC § 112, second paragraph rejection of claims 13-15

Claim 13 has been amended to recite the "at least one" command member recited in claim 1, and claim 14 has been amended to recite that the actuator comprises a hydraulic actuator, as disclosed in claim 7. Accordingly, all grounds of rejection under 35 U.S.C. §112, second paragraph have been overcome.

II. 35 USC § 103(a) rejection of claims 1, 4-6, 10-14, 17-18 and 20

(a) Claims 1, 4-6, 10-14, 17-18 and 20 stand rejected under 35 U.S.C.§103(a) over Izumi et al. (U.S. 4,510,750 herein after "Izumi '750") in view of either Koopmans (U.S. 4,727,718) or Plater (U.S. 4,508,281).

(b) Claims 1, 4-6, 10-14, 17-18 and 20 stand rejected under 35 U.S.C.§103(a) over Izumi et al. (U.S. 4,528,813 herein after "Izumi '813" in view of either Koopmans (U.S. 4,727,718) or Plater (U.S. 4,508,281).

(c) Traversal of II (a) and II (b):

The presently claimed invention patentably distinguishes over either combination of references at least because the hydraulic circuit recited in claims 1 and 11 recites a valve means 35, 37 that is an integral part of the hydraulic circuit itself 11 by which the flow rate of the pump 17 is adjusted. For example, amended claim 1 recites valve means:

> fed from said feed pump by intercepting oil from a pilot pipe connected to said feed pump, said valve means being connected to said detection means, and able to modify operation of said hydraulic circuit by acting on said at least one command member of said feed pump which controls delivery of the feed pump to reduce the hydraulic delivery of said feed pump in the event that the pressure measured exceeds said pre-determined pressure value.

Base claim 11 has been amended in a similar fashion.

In the present invention, a single hydraulic circuit is provided which comprises the variable delivery feed pump 17 and the hydraulic motor 21 and a pre-loading pump 40 which is connected through the circuit through a specific pipe 41.

In the present invention, the valve means 35, 37, which control the adjustment of the flow rate of the pump 17, are not elements of an adjustment and independently supplied circuit as in the patents of Izumi et al. Rather, the valve means 35, 37 *are fed by the same pre-loading pump 40 of the hydraulic circuit 11 such that they* are integral parts of the hydraulic circuit 11 in which

they adjust the flow rate by means of the pump 17. In fact, the valve means 35, 37 of the present claimed invention intercept a respective pilot pipe 36, hydraulically connected either at the pipe 20 or pipe 41, which are integral parts of the hydraulic circuit 11 (see page 8, lines 8-33).

The physical arrangement of the valve means in the present claimed invention allows the hydraulic circuit 11 to be self-adjusting. Thus, the present claimed invention does not require the independently supplied servo adjustments circuits required by either combination of Izumi '750 with Koopmans or Plater, or Izumi' 813 with Koopmans or Plater.

Contrary to the combinations of Izumi patents, the present claimed invention allows the hydraulic circuit 11 to be self-adjusting, without requiring independently supplied servo adjustment circuits, as a direct consequence of the traction load of the cable 16. The traction load of the cable 16 may either raise (in the case of a problem like a stoppage in the laying operation of the cable 16) or lower the hydraulic pressure in the circuit (when the output of the motor overcomes the traction load absorbed by the cable 16).

In contrast to the present claimed invention, the combinations of either Izumi '750 or Izumi '813 with Koopmans or Plater, rely on one of the Izumi patents to disclose a circuit pressure control system incorporated into a hydrostatic power transmission circuit. This hydrostatic power transmission circuit includes a prime mover 1 connected to a variable-displacement hydraulic pump 2, and a hydraulic motor 3 connected to a load 4 for driving the same. The hydraulic pump 2 and the hydraulic motor 3 are interconnected at their discharge ports and suction ports by hydraulic conduits 5a and 5b, respectively, to constitute a substantially closed circuit.

In both combinations of Izumi patents (with Koopmans or Plater), the displacement of the hydraulic pump 2 is controlled by a displacement adjusting mechanism 2a, controlled by a servo valve 10 of the electro-hydraulic type which controls the flow rate and direction of the hydraulic fluid supplied from a pilot hydraulic pressure source 11 to the displacement adjusting mechanism 2a.

Additionally, both combinations of Izumi patents (with Koopmans or Plater) further disclose a control unit 12 or 16, composed by a swash-plate tilt control circuit and a pressure

control circuit, which supplies the operating current "i" to the servo valve in function of a circuit pressure signal P, supplied by a pressure sensor, and a lever manipulated variable signals X_L conditioned by a manual or operating lever (13 in Izumi '813, 15 in Izumi '750). The operating lever is a component external to the hydraulic circuit comprising the pump and actuator.

Accordingly, from the above description of the combinations of references, shows either combination of Izumi and Koopmans or Plater disclose two separate circuits. First, a hydraulic closed circuit in which operation of the hydraulic pump and the hydraulic motor for driving a load. Second, a separate electro-hydraulic circuit pressure control system able to adjust the displacement of the hydraulic pump in function of deferred operative signals P and X_L.

In fact, in either Izumi there are two separate hydraulic pressure sources, a first pressure source for the closed circuit comprising the pump and the motor, which is defined by the change pump 6 for supplying hydraulic fluid to the closed circuit, and a second pressure source for the circuit pressure control system defined by the hydraulic pressure source 11 of the servo valve 10.

However, the circuit pressure control system of both Izumi patents is an independent servo circuit of the hydraulic closed circuit, and does not indicate the operation of the hydraulic circuit itself can be directly modified as a response to detecting a set limit (either higher or lower, as explained below) value of the fluid pressure in the circuit has been exceeded.

In addition, both combinations of Izumi patents disclose the pump delivery is changed if the power supplied by the motor is higher than the product between the load and its velocity.

In other words, the control system disclosed in the combinations of Izumi patents can only actively control the pressure of the circuit. They do not allow passive control in situations where the load prevails over the power deliver of the hydraulic motor.

In particular, as evident from Fig. 1 of both combinations of patents of Izumi, the servo valve 10 is connected upstream of the displacement adjusting mechanism 2a and therefore prevails over the latter. In other words, the servo valve 10 allows an autonomous operation of the mechanism with respect to the adjustment of the flow rate of the hydraulic pump 2. However, it does not allow autonomous inversion of the operation direction (by decreasing the hydraulic pressure in the circuit), for example, to autonomously obtain (i.e. without intervening

in the delivery of the motor) a controlled release or recovery of the load itself as a function of the reaction force of the load itself.

Both combinations of Izumi patents disclose a load having a value known *a priori* and substantially constant over time is coupled to the hydraulic circuit. Therefore, only active control of the speed, the acceleration or the force is needed and can be obtained (see for example, Izumi'813 at col. 2, lines 28-32).

Accordingly, it is respectfully submitted that none of the present claims would have been obvious to an artisan at the time of invention in view of either combination of Izumi'750 and Koopmans or Plater, or Izumi'813 and Koopmans or Plater for the above-mentioned reasons and because the present claimed invention includes a single hydraulic circuit comprising both the pump 17 and the hydraulic motor 21, as well as a feed or pre-loading pump 40 connected to the circuit through a specific pipe. Specifically, the structure and function of the present claimed invention is that the feed pump 41 is the only source of pressured oil in the circuit, and no other external sources of oil are provided.

Moreover, the structure of the present claimed invention is such that it "may be used both in active steps of winch drawing, and passive steps for braking reaction" (page 4, lines 27-28). See also, lines 27-29 stating the winch 13 may either unwind (first direction of circulation of the oil in the circuit) or brake (opposite direction of the oil in the circuit) the electric cable 16. In these cases, the main pipes 19 and 20 may assume alternatively a function of the delivery pipe and the return pipe (page 6, lines 8-15), by inverting the direction of the oil in the circuit.

Applicants also additionally submit that the present claimed invention is directed to a hydraulic motor having a fixed delivery, which does not affect the pressure of oil in the circuit. In contrast, the combinations of references disclose a variable delivery. The variability of the delivery of the hydraulic motor nullifies the univocal relationship between the pressure of the oil in the circuit and the value of the load applied to the cable 16.

Also, the present claimed invention recites the valve means 35, 37 prevails with respect to the intervention of the distribution valve 45 (which is comparable to the servo valve 10 disclosed in either Izumi patent). This allows the pump 17 to operate as a motor, consequently

drawing the thermal motor 12 when the hydraulic motor 21 is mechanically drawn backward by the reel 15 because of the traction due to the load of the cable 16 (page 9, lines 1-9).

Therefore, contrary to the combinations of patents cited in the Office Action, the present claimed invention permits an autonomous inversion of the operation direction of the pump 17. For example, the present claimed invention permits autonomously obtaining a controlled release or recovery of the cable 16, as a function of the variations in the load conditions of the cable itself, independently from the direction commanded by the distributor valve 45.

The arrangement of the present claimed invention advantageously allows one to locate two analogous apparatuses 11 at the end of the same cable 16, either the recovery (winch) or the release (brake) of the same, annulling and/or inventing the velocity of the pump 17 to maintain a constant load on the cable 16.

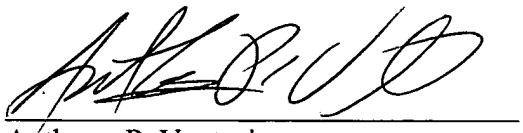
In other words, contrary to the combinations of patents cited in the Office action, when a maximum or minimum set limit value of the fluid pressure in the hydraulic circuit is exceeded, the present claimed invention autonomously reacts by transforming the circuit itself, without any external intervention, to return the value of the fluid pressure to at or under the set limit.

III. Conclusion

In view of the above, it is respectfully submitted that all objections and rejections are overcome. Thus, a Notice of Allowance is respectfully requested. Applicant also respectfully submits that all withdrawn claims should be allowed as well as the invention is patentable irregardless of the there being an electro valve or an hydraulic valve.

If any additional fee is necessary to make this paper timely and/or complete, it may be charged to the undersigned's deposit account number 19-4375.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Date: March 1, 2006 By: 

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